7: International Bank N, S-4 (1951) 1952 MH1 Iraq MH1

439 457 skins. Not all the dollar income accrues to Iraq, however, partly because invoices are regularly undervalued and also because some commodities are sold through intermediaries in the Lebanon.

439 **Other Products.** In the years 1947 to 1949 the remaining exports consisted of the following: bricks and sand exported for use by the Anglo-Iranian Oil Company to the value of about ID 300,000 a year; a variety of agricultural products, whose total value did not exceed ID 500,000 in any one year; and cotton. Iraq has always exported a little cotton, but in the best years, just before the war and again in 1950, its value was only about five percent of all export receipts. The position is now changing radically. Iraq, like several neighboring countries, is experiencing a cotton boom. Under the stimulus of high prices, the area under cultivation has increased rapidly in the last few years and predictions for the 1951 crop have ranged as high as 150,000 tons of seed-cotton, compared with 25,000 tons the year before. If the fellah's traditional aversion to a crop he cannot consume himself has been permanently overcome and if he can acquire the necessary knowledge for good cultivation, cotton could very soon become one of Iraq's most important exports, if not the most important. As a summer crop, however, its cultivation will be hazardous until the control of the rivers gives better assurance of a summer water supply.

[248]

Import Policy

439 656 457 All foreign transactions are, with certain exceptions, subject to exchange control. Imports from hard currency areas have been governed by licensing systems and have been limited to goods such as agricultural and industrial machinery, automobiles, trucks and drugs. Before 1948, imports from other areas were not subject to license, except for about 100 items, mainly luxuries. In that year, however, Iraq experienced a very large drain on her foreign exchange reserves and a more complex system was introduced.

Under the system now in force, all imported goods have been placed on one of several lists, the two longest consisting of "unlimited" and "limited" goods. Each merchant is given an annual quota in dinars, within which he can import unlimited goods without restriction, provided he obtains a license for each purchase. Alternatively, he can spend a small part of his quota on "limited" goods, but only up to a fixed amount.

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241 feeding will make livestock far more productive and resistant to
231 disease and produce better and stronger draft animals. By making the keeping and systematic feeding of livestock an integral part of settled agriculture, the people on the land will be assured fuller employment and higher incomes. Livestock should play a more prominent part in the farm economy for still another reason. The great bulk of the sheep and goats, which constitute over 80 percent of the livestock, are the property of nomads and semi-nomads.
[221] Nomads from the northern and southern deserts regularly move into the riverine areas in search of summer pasture; and semi-nomadic shepherds move within the irrigated areas feeding their flocks on green barley, grain stubble and the grass and weeds of fallow land. Both are meeting with increased resistance from the settled farmers; and in any event the expansion of the area under irrigation will increasingly curtail the pasture available to the nomads. Thus the remaining nomadic tribes will need to be gradually settled, but they will adapt themselves readily to settled agriculture only if it will enable them also to maintain considerable livestock.

246 Among the forage crops berseem or Egyptian clover, a winter annual, is well-adapted to most of the irrigated area of Iraq and could be grown on a much larger scale. Sown in the grain stubble in late summer, it will provide a good pasture, soiling and hay crop. Alfalfa, a perennial, also makes a good forage crop capable of yielding 1.5 to 5 tons per donum for two to five years. However, in view of its deep roots, it cannot be recommended unless good cultivating equipment is available to kill it when necessary. For summer pasture, quick-growing crops such as millet or binder crops such as maize and sorghum should be grown. Summer legumes—cowpeas and mungo beans, and particularly the black mungo of India—can be recommended. The lack of water during the summer makes the problem of forage crops in the rain-fed zone more difficult. Large areas can, however, be planted to winter oats and vetch which, when cut, cured and cocked, will provide a good reserve feed.

248 The increased production of cotton which has taken place recently should be an excellent source of livestock feed once farmers learn to appreciate the value of oil cake feeding. For this

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reason the cultivation of more cotton as well as such crops as linseed and sunflower seed will be important to the livestock economy.

Sugar Beets and Cane

The value of beet tops and pulp for livestock feeding might also be regarded as one of the principal reasons for introducing the cultivation of sugar beets. Similarly, one of the advantages of cane sugar might be the production of molasses which could also be used for livestock feed. These have been, of coursé, subordinate considerations in the minds of those who have advocated these crops for Iraq. The principal consideration has been to produce at home the sugar now imported in a volume which averaged 75,000 tons per year in the three-year period 1948 to 1950.

Undoubtedly sugar beets could be cultivated in the northern provinces of Suleimaniya and Mosul and sugar cane in the South, particularly in Amara. The real question is, however, whether either or both of these crops could be grown economically and on a scale large enough to warrant the necessary investment in processing plant. It must be decided whether cane or beet is preferable and whether either of them can compete with cotton for the available land, water and labor. The data available at present do not make it possible to arrive at sound decisions on these questions.

Test plots grown over 10 years indicate that there are several varieties of beet well adapted to Iraq and capable of reasonably high yields in terms of sugar. Experiments on cane sugar production at Abu Ghuraib, Basra and Amara have yielded much less favorable results, although one variety under test held some promise of furnishing sugar at an economic cost. The experiments, however, have not been conducted in a way and on a scale that would permit a satisfactory conclusion. If further experiments prove the feasibility of growing cane, it is likely to be a more economic crop than sugar beet. Experience elsewhere demonstrates that cane yields are generally higher and that the production of cane is less difficult and less demanding of skilled and semi-skilled labor than that of sugar beets. It is suggested therefore that further experiments on a larger scale be undertaken under appropriate expert guidance. In each of the possible beet sugar areas five or more 10-donum plantings might be tried. Special attention

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COTTON IN THE MIDDLE EAST

PRODUCTION

433 Industry at present is confined largely to processing agricultural products, producing building materials, and manufacturing consumer goods—matches, soap, cigarettes, shoes, beverages, and textiles.

Conditions are favorable for further industrial development. Opportunities are abundant for producing agricultural raw materials for processing, and indications are that iron, copper, zinc, chrome, sulphur, and salt exist in commercial quantities. With plenty of oil and natural gas, fuel is no problem. Manpower is adequate, and with proper training the Iraqi workman is said to be competent. A higher level of agricultural production would create also a wider market for manufactured products.

There are a number of limitations. The lack of technical "know-how" and the lack of sufficient private capital and initiative are the most important. Much capital, particularly that accumulated from agriculture, is said to be hoarded; and the balance generally is invested in urban or rural property, which is regarded as less risky, or in commerce where investors anticipate a 471 high rate of return. It is suggested for this reason that industrial development in the immediate future will have to depend very largely upon the

348 464 442

—Photo Courtesy of Technical Cooperation Administration

In most of the Middle East countries, cotton harvesting and, to a certain extent, weeding depend on migrant laborers who travel from one area to another. In Iraq, most of the members of the migrant farm worker's family walk, carrying their household goods on their heads. Only the tiniest youngsters and the oldest women ride the burros.

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COTTON IN THE MIDDLE EAST

RESEARCH AND EDUCATION

654 242 At present the Department of Agriculture has less than 25 qualified agriculturists capable of research and educational work, and most of their time is said to be devoted to administrative and regulatory tasks.[49] A complete program in research and extension is needed. Such a program is being developed gradually now with the help of the various technical assistance agencies.

CREDIT

452 652 Production credit facilities are almost non-existent. An effort is being made, however, to increase the resources of the state-owned agricultural bank to provide adequate production credit and to establish storage facilities for crops. According to the United Nations' special reports, moneylenders' interest rates to farmers for crop production were 30 to 40 per cent before the government recently established the agricultural bank.

COTTON

248 Cotton has never been particularly important in Iraq, from the standpoint of either the acreage involved or the total production. Its potential, however, is great.

Table 33

IRAQ: Statistics on Cotton Production and Distribution
Specified Years, 1920-1951

Year beginning August 1	Acreage	Yield per Acre	Production	Consumption	Exports	Imports
	Acres	Pounds	Bales			
Average 1920-24	NA	NA	805	NA	NA	NA
Average 1925-29	NA	NA	2,977	NA	NA	NA
Average 1930-34	2,751	159	1,240	NA	NA	NA
Average 1935-39	53,299	97	10,772	NA	NA	NA
Average 1940-44	73,000	62	9,409	NA	10,477	2,845
Average 1945-49	21,619	100	4,492	4,000	3,152	2,783
1950	100,000	182	38,121	7,000	31,000	0
1951	135,000	135	38,000	10,000	1,887[1]	

[1] Exports, August through November.

SOURCE: Office of Foreign Agricultural Relations, United States Department of Agriculture, and International Cotton Advisory Committee.

Before the war, production averaged only about 12,000 bales and slightly less in the postwar years through 1949. Higher prices throughout the world, together with the export controls imposed by the United States and the shortage of cotton, sent production to about 38,000 bales. It would have been three to four times as large on the basis of the planted acreage had it not been for heavy insect damage.

AREA

About two-thirds of the cotton is produced under irrigation in the vicinity of Baghdad and Kut on the Euphrates and Tigris Rivers. These two areas, together with three or four other smaller ones, account for about 88 per cent of production. Some 10 to 12 per cent is produced in Northern Iraq, mostly around Mosul, and about 2 per cent in Southern Iraq, from Basra north along the river.

[49] *Economic Development of Iraq, op. cit.*, pp. 98-99.

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COTTON IN IRAQ

Iraq hopes to expand the cotton area greatly, especially in the northern sections where the winters are cold enough to kill the insects. Here there are millions of acres, suitable from the standpoint of soil and temperature, which could be used for cotton if the available water is utilized for irrigation to supplement rainfall of 10 to 15 inches. The few protected valleys with rainfall high enough to permit cotton production without irrigation are small in total area. 248

The northern areas are now sparsely populated and expansion of cultivation is expected to be under complete mechanization. The government is planning to buy a cotton picker for experimental purposes, looking toward the possibility of using them in this area later, after the proposed irrigation facilities are constructed.

Expansion doubtless will depend on the rapidity and extent of the irrigation development.

YIELDS

Historical data on yields are sketchy and not too dependable. These records indicate a prewar range by years from 80 to over 300 pounds of lint per acre and postwar yields from 67 to 180 pounds per acre. The large variations are attributed to insect damage. This was the case in 1951 when the yield averaged about 135 pounds.

Yields at the cotton experiment stations also vary greatly from a little over 100 pounds to as much as a bale and a half. The average is about half a bale per acre. Experiment station specialists insist that their yields are from two to four times higher than those on private farms in the area.

VARIETIES

During the twenties a cotton called Mezo-White, developed in Iraq from a strain of an American Upland called Weber 49, was generally planted, but about 1930 it was supplanted by Rogers Acala. Some reports say the seed of the Acala cotton is badly mixed and both the yield and the staple have deteriorated. Pure seed is available out of the selections from the original Acala, and planting of the so-called "old" Acala is now prohibited by law. This law, however, is not completely effective. 248 242

Several new upland varieties now are being grown experimentally, and some look very promising, especially Coker Wilt from which pure seed is now being distributed. The new Acala strains and the Coker cottons are said to staple about 1 1/32 inches as a rule and run up to 1 1/16 inches under very favorable conditions. In 1951-52 about 90 per cent of the crop was Rogers Acala and 10 per cent Coker.

A small quantity of an indigenous Asiatic *herbaceum* called Levantine is still planted primarily for local use by the farmers for wadding and padding, and there is some interest in trying to improve the seed.

CULTURAL PRACTICES

Formerly the tenants prepared the land with primitive ploughs, but now practically all the cotton fields and most of the wheat fields are prepared with tractors which are either owned by the sheiks or rented from the govern- 248

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248 ment. The land is usually broken dry with large mould board ploughs, pulled with heavy-duty track tractors, which is an expensive operation. The heavy dry base and the lack of humus cause the soil to break up into very large clods which then have to be cut down with large disk harrows pulled back and forth a number of times across the fields, resulting in a substantial addition to preparation costs. It has been suggested that pre-irrigation before ploughing would greatly improve seed bed preparation and reduce power costs. This suggestion may be adopted after its practicability has been tested. This is another example of the need for research in cultural practices, especially in the use of new mechanical equipment.

In spite of the heavy machinery used almost entirely in pre-planting operations, hand labor is employed to ridge the land into rows 35 to 40 feet long, about a foot high, 9 inches wide, and about 3.5 feet apart. (The practice of broadcasting on flat beds is being discontinued.) A pre-planting irrigation is given by flooding the furrows between the ridges. Then seed, which has been soaked overnight to enhance germination, is planted by hand, about five seeds to the hill with the hills about seven to nine inches apart. The seed is planted on the south side of the ridge where it is thought it will be more protected and warmer during the germination period.

Immediately after planting, cotton is given a shallow irrigation; about fifteen days later a full irrigation; and is then watered every 10 days to 2 weeks until the bolls open. This method gives the cotton from 12 to 20 irrigations, an average of six acre-inches per irrigation or a total of from 5 to 10 acre-feet. The idea seems to be prevalent that heavy irrigations help to wash the salt from the roots of the plants. On the contrary, irrigation engineers have pointed out that just the opposite occurs, since a heavy input of water raises the water table and causes the salt to rise to the top. United States agronomists in Iraq are of the opinion that the excessive water causes

Photo Courtesy of E. R. Collier

In Iraq, as in the other arid countries where cotton is produced, seed cotton and cottonseed are often stored in bags in the gin yards.

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the plants to vegetate without setting squares and bolls and that it also increases the period of maturity, making the plants more susceptible to damage by insects late in the season. This is simply another of many problems in cotton culture which need to be studied carefully if the crop is to be expanded as rapidly as the government hopes. 248

Cotton usually is thinned to two plants per hill and weeded only about twice. This, together with the heavy irrigations, leaves the patches weedy. Farmers as a rule do very little cultivation except around the plant itself at the time of weeding. Then they try to pull the soil from the top of the ridge to leave the plants in the center.

The equipment used by the tenants themselves is in sharp contrast to the tractors now employed in land preparation. The only tools used in ridging are a pointed spade and a short-handled hoe. This is the same instrument used for planting, thinning, weeding, and the limited amount of cultivation. [412]

Such practices are obviously laborious and time-consuming. One of the United States observers estimated that it takes three women all day to plant a quarter of an acre. Even at the low wage scale, equivalent to 25 cents a day, this costs $3.00 per acre. It would be less expensive to use mechanical equipment, even though the tractor drivers are paid the equivalent of about $1.25 per day, five times as much as common labor. [465]

Complete mechanization may come quickly in the thinly settled new areas of the north, but in the denser, old areas labor is tied to the land in long-

—Photo Courtesy of E. R. Collier

In Iraq, as in most of the Middle East, cotton is brought to the gin in large burlap bags, ginned, and pressed into bales weighing between 400 and 500 pounds, when new equipment is used. Gins in Iraq wrap the cotton on all sides and wind a continuous band around the bale.

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248 established tenure systems, and the primitive methods likely will disappear slowly.

Earlier British experiments in the area indicated March 15 to April 15 as the optimum sowing dates, but reports are that cotton usually is planted much later, either because of laxness or because of labor competition with other crops. Some farmers try to get wheat off and then plant cotton, which throws the cotton very late. Cotton planted in April will begin opening in August. The Rogers Acala undergoes a dormant period of several weeks after the first bolls open and then continues to set and mature bolls up to January. About 80 per cent of the cotton is made on what is called this second or late flush. Picking goes on during all this period.

GINNING

248 407 Until a few years ago there were only about four saw gins with 10 stands in the country and no roller gins. The large profits in recent years on the limited number of gins and the general interest in expanding the crop have prompted a rush to buy new equipment. A total of seven gins operated last season, of which three were newly constructed by the Murray Gin Company. This company has sold three more new gins with a total of 16 stands, which are in process of erection. All the new gins are fully equipped with overhead Mitchell cleaner-feeders and one has the new incline cleaner. Not only the equipment but also the buildings, offices, and storage houses are very modern.

All the gins, with one exception, are privately owned. However, the government will buy another small gin for experiment station use in ginning pure seed that is produced on the station's farm. All the gins except one near Mosul are in the Baghdad and Kut areas.

A great deal of hand labor is employed in the storage houses for picking out foreign matter and damaged and immature locks of cotton before ginning. There are reports that as much as 35 per cent of the weight of the seed cotton coming to the gins is taken out as extraneous foreign matter added to increase the weight of the bales. The government is making a strenuous effort to protect the reputation of cotton by encouraging better ginning.

To facilitate transportation, the ginners make a light 400-pound bale covered on six sides in light-weight burlap and bound with a continuous narrow steel band which is simply tucked under at the end instead of buckled. There are no other compresses and the cotton must be exported in the form in which it comes from the gin. This results in a heavy freight charge, since the gin bales have a density of only 16 to 18 pounds.

442 MARKETING

[489] The farmers themselves take the seed cotton in bags to a central market place, usually located at the gins, and sell to merchants. Transportation is scarce. Oftentimes the cotton is carried by the farmer in sacks on his back or his head for miles.

The merchants make little differentiation in price for fiber quality. They do make allowances for foreign matter and moisture which, merchants claim, are added by the farmers in an effort to increase the weight. The merchants gin the cotton for their own account and retain title to the seed and the lint.

The merchandising system can best be described as haphazard. The volume of cotton is small, and merchants handle the cotton along with many

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other commodities. As might be expected in such a situation, the system of classification is limited. The cotton is usually sold on types. Ginners indicate they will buy and sell cotton themselves in the future as in many other countries. 442

The one large cotton spinning mill is putting in its own gin to supply the mill with its requirements of around 15,000 bales annually. This will restrict merchandising to exports unless and until another mill is built.

OIL MILLS 388

There is one oil mill which crushes the largest part of the seed produced. The rest is exported. The capacity of this plant is to be increased and facilities for processing oil products are being added.

EXPORTS 439

Iraq has exported approximately 18,000 bales during each of the past two years, mostly to Germany and Japan, with smaller quantities to Holland, Italy, Spain, and the United Kingdom.

IMPROVEMENT PROGRAMS 248 654

The Director General of Agriculture has promulgated an ambitious 10-year program for increasing cotton production to about 500,000 bales. In time, he believes that on the basis of the available land and water Iraqi production can be boosted to more than a million bales. While admitting his program is ambitious, the Director General appears to be firmly convinced it can be accomplished, given adequate technical assistance.

United States agricultural experts with the Point Four Program are inclined to agree that the country's natural resources can support a potential cotton production of this magnitude. The rate of increase, they think, will depend on how effectively the technical resources of the country are organized and applied.

The Director General is highly regarded for his technical as well as his administrative ability and particularly for his driving force. He is especially well qualified to direct the cotton improvement program, having graduated in cotton agronomy from Texas A. & M. College.

Long-Range

For long-range improvements he is depending on the agricultural research agencies now being organized to develop better varieties, more effective irrigation and cultural practices, better insect control techniques, and improved methods of classification and marketing. Still in the planning stages, the research program has done some fairly effective work, especially on variety selection, propagation, and fertilization.

Insect Control

One of the main research problems is the control of insects. The government estimates that 75 per cent of the 1951 cotton crop was destroyed by insects, principally by the spiney bollworm, *Earis insulana* (Boisd.), a white fly that attacks the leaves, and by aphids. Fortunately, the Director said, the pink bollworm has not made its appearance in the country. Experiments are 242

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242 134 for centuries, and farmers have depended on the silt deposited from the overflows to maintain the fertility. Increased use of canals and dams for irrigation has made the overflows less frequent. Experiments conducted for the past three or four years with commercial fertilizers have shown no significant benefit, but the United States experts feel the tests are not conclusive and should be continued with various soil conditioners.

While depending on basic research to stimulate long-range production, the Director General is trying to force an immediate improvement through regulations requiring the application of techniques known to be beneficial.

248 656 *Controls*

In an effort to concentrate cotton production on the better suited lands and to facilitate insect control, seed control, and other beneficial measures, regulations have been promulgated requiring government permits for all cotton acreage planted. These permits, based primarily on suitability of the soil and availability of water and labor, are issued on the recommendation of local representatives of the Ministry of Agriculture. However, the enforcement system is inadequate, and it is generally admitted that the regulation is not closely followed, especially in areas where the local sheiks are extremely powerful and are practically a law unto themselves.

654 242 407

—*Photo Courtesy of Technical Cooperation Administration*

At the government cotton experimental farm near Baghdad a double-handled board is used to level the high spots in a newly ploughed field. Outside the government farms little leveling is done. Through the Point Four Program the United States is cooperating with the Iraq Government in experiments and demonstrations to improve cotton cultural practices.

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COTTON IN IRAQ

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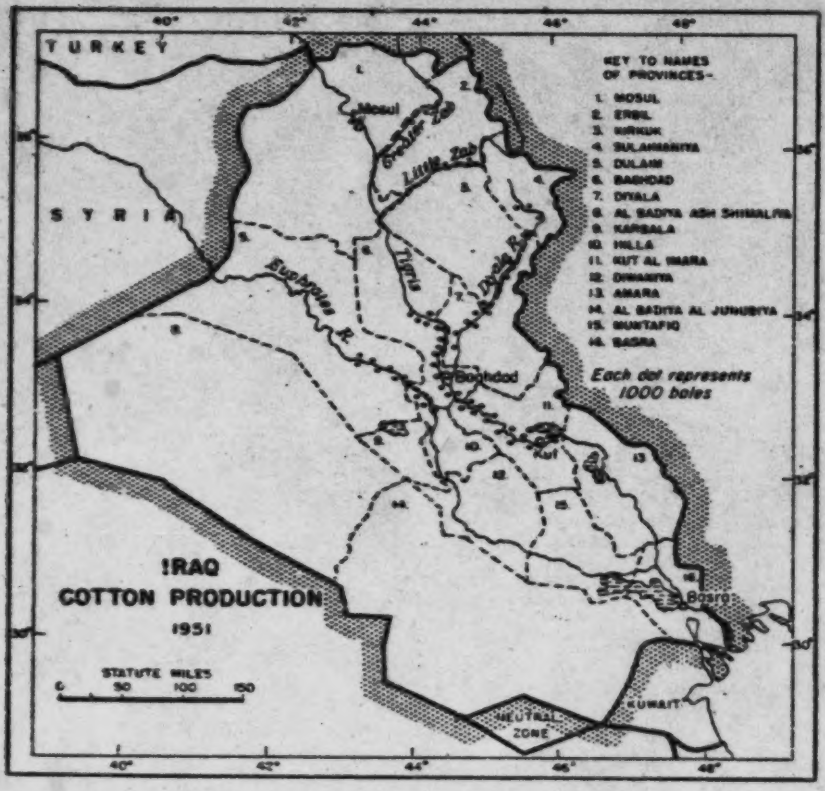

The Ministry also has a program under which pure seed imported from the United States and those propagated on the state farms are distributed free of charge to farmers who have received planting permits and who agree to the variety control. Under this program the government proposes to distribute enough seed to plant most of the area annually for the next five years. Despite this incentive, widespread evasion also is reported. Apparently the farmers still rely on the mixed seed on the theory that if one does not produce another will. (Seed distribution in 1952 was considerably less than in 1951 because of the bad crop last season.)

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The government also has established supervision over all the gins for control of seed distribution to prevent any except approved seed from going back to the farms for planting. Here again enforcement is said to be inadequate.

The mandatory insect control program is another illustration of the effort to force an improvement in cotton, and here again the results have been questionable.

242

The Director General is thinking also of establishing a price stabilization program to lend further encouragement to the promotional programs, but this has not been approved as yet.

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Even the government recognizes the difficulty of enforcing these rather drastic measures in a short period of time against the tradition of complete freedom of action by the landowners. The most significant fact is not that they have not been completely successful in the first few years, but that the measures have been adopted by the government. The trend definitely is toward tighter and tighter control by the government. The outcome likely will depend on how readily the big landlords accept the regimentation and cooperate. If the landlords become convinced that the regulations are to their ultimate economic advantage, they may comply willingly. So in the end the controls may depend on the educational program.

35: Hooper and Field 5-5 (1934) 1937 MAI Iran MN
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Egypt and Baghdad in a powdered form and employed by Coptic and Arabian women as a strengthening medicine. Before 1914 it was exported in considerable quantities, chiefly to Egypt, as an aphrodisiac. A decoction of the root is sometimes used at Baghdad as a cough cure (G.).

Glycyrrhiza glabra L. (Leguminosae)

ریشه اصل سوس

Rishah-i-asl-i-sūs (Teh.); Bekh-sus; the root.

رب سوس

Rubb-i-sūs, Asal-alsus; the sweet extract; licorice.

Achundow; Ait.; Boiss. 2: 202; Post 277; Schl.; Ph. Ind. 1: 491. Field 243, 259; K.B. 319.

The licorice plant is a characteristic and common shrub in the Badghis and Khorasan at an altitude of about 2,000 feet, and occurs also in Baluchistan. The annual shoots grow to 4 feet from enormous underground rootstalks, which are sometimes used as fuel. The nomads at Yezd prepare an extract from these roots. India obtains market supplies of the root and extract from Iran and Sind; it has been suggested that the plant might be cultivated in the North-Western Frontier Province. Throughout Asia, licorice root and its extract, from time immemorial, have been used for cough and chest complaints.

—Licorice root is also given to relieve acute indigestion from eating fruit (H.F.). The plant is said to yield an aphrodisiac (G.).

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Gossypium sp. (Malvaceae)

قطن

Cotton (Qutn, Ar.) is the hair-like cells clothing the seeds of the cotton plant. Specimens of cotton and seeds presented to Field Museum by the Rustam Agricultural Experimental Farm at Hinaidi, Iraq, are:

G. herbaceum L. Iraqi or Indian cotton (Qutn Iraqi); probably indigenous or at least cultivated for many centuries. (Field 6A.)

G. barbadense L. Sea Island cotton. (Field 2A.)

G. hirsutum L. "Mesowhite" (Qutn Amrikani). A derivative of the long-staple American upland cotton. (Field 38 [Iraq]; 8A, 10A, 13A.)

35a Hooper and Field 3-5 (1936) IRH MAI Iran MAI
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G. nutricosum Tod. Mexican cotton introduced into India in 1804. The seeds yield a copious, woolly fluff. (Field 13 [Iraq]; 1A.)

At Rustam Farm the following varieties of cotton are also grown:

(*a*) Rustam No. 65. Field 3A. Origin Iraq.

(*b*) Rustam No. 124. Field 5A, 9A. Origin Punjab, India.

(*c*) Mosul White. Field 4A. Origin Mosul, Iraq.

(*d*) *G. peruvianum*. Ish-hany. Field 11A, 12A. Origin Egypt.

(*e*) Rustam No. 128. Field 7A. Origin Acala.

Guest (p. 39) records the following information: "*Gossypium* (Malvaceae). Cotton. Qutn (Ar.), Pambuq (Turk.), Lukah (Kurd.), Pambu (Kurd.).

"Iraqi or Indian Cotton, *G. herbaceum* L. (Qutn Iraqi), a well-known, short-stapled type, is probably indigenous or has at least been cultivated in Iraq for many centuries. It is still grown to some extent as a summer crop, especially on the northern plains where springs or streams provide irrigation water. The lint is used chiefly for stuffing. It is the local practice to pick this type of cotton with the boll intact, the dry boll and other rubbish being removed later.

"After the War the Department of Agriculture tried many foreign varieties of cotton and eventually issued seed of 'Mesowhite,' a derivative of the long-stapled American Upland cotton, *G. hirsutum* L. (Qutn Amrikani). A ginnery was erected by the British Cotton Growing Association, who did much to encourage this crop. The cultivation of Mesowhite cotton as an irrigated summer crop rapidly became popular in lower Iraq and after ten years (in 1928) the annual export of cotton exceeded 5,000 bales of 400 pounds each. Since that year the size of the crop has fallen off very rapidly, chiefly owing to the slump in world prices which has discouraged the local farmers. In 1932 the export of bales of cotton from Iraq amounted to only about four hundred. One or two other varieties of American cotton, such as Acala, have done well in trials at Rustam Farm; this is a cotton inferior to Mesowhite but gives a higher yield and ginning percentage.

"Egyptian cottons (Qutn Misri) have also been tried but have not proved successful under local conditions."

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Gypsophila paniculata L. (Caryophyllaceae)

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العابونيه

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El-ābūniyeh (Ar.); Zuleh (Ham.); Saonafid, Bekh (Ait.); Kundur, Kundusch (Achundow); soap-root.

249

249 SPECIAL CROPS--specialized cultivation of plants not classifiable under the foregoing headings (e.g., cinchona, indigo, oil palm, opium poppy, rubber, sugarcane, tobacco); techniques of planting and harvesting; use of specialized tools and equipment; organization of labor and production; processing prior to shipment or industrial use (e.g., curing, refining, grading); etc.
See also:

Manufacture and use of narcotics 27
Confectionery industries 267
Condiments 263
Rubber industry 383
Dyes 386

7: International Bank N. 5-4 (1951) 1952 MHI Iraq MHI

research. The Mission recommends that in the future such farms should be used primarily as experimental stations. Seed for distribution to farmers could be produced on land surplus to the needs of the experimental stations or on a contract basis under appropriate government supervision on private farms. The Mission suggests that immediate steps be taken to secure a research director to coordinate all existing research and to recruit a gradually expanding staff of full-time research experts consisting partly of foreigners and partly of Iraqis.

These measures will bring about an improvement in agriculture only very gradually. In the short run they will need to be supplemented by positive financial incentives. Most farmers will probably prove unwilling or unable to invest money or time in the cultivation of fodder crops or the use of fertilizers unless they are convinced through practical experience that such an investment is really worthwhile. In order to induce farmers to experiment themselves, the government may wish to consider providing free seed for fodder crops and defraying part of the cost of fertilizer, or, alternatively, making a flat money payment per donum to those undertaking to use fertilizers or grow feed. Such incentives should, of course, be offered only as long as is necessary to demonstrate the value of improved methods. The provision of credit for the acquisition of machinery, fertilizers and other means of production will also be helpful in this respect.

It has already been pointed out that the existing sharecropping system, coupled with the shifting nature of cultivation, militates against the introduction of soil-building and forage crops. Under present conditions the landlord will find it difficult to compel the fellah to grow such crops unless the fellah is actually paid for doing so. The Mission therefore suggests that the difficulties inherent in the sharecropping system, as well as the advisability of changes in this system, be studied by an expert on land tenure.

Tobacco and the Tobacco Monopoly

The Mission has paid special attention to tobacco, not only because cultivation of this crop is of considerable importance to the Kurdish farmers of the North, but also because tobacco leaf is

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249 handled by a government monopoly, the operations of which have 665 been highly controversial.

The Tobacco Monopoly was established in 1939 in order (1) to improve the quality of tobacco, (2) to assure farmers stable and remunerative prices, and (3) to raise revenue for the government, although this objective was not explicit and was certainly subordinate to the other two. The Monopoly licenses the area which may be planted to tobacco, buys the tobacco produced thereon at fixed prices set each year and resells it to manufacturers at prices more than twice as high as those it pays.

It is generally recognized that the first objective has not been realized, for the quality of tobacco, which was never high, has probably declined still further. Neither the Monopoly nor the Department of Agriculture has had the personnel to assist farmers in improving the varieties or strains of tobacco grown or the methods of cultivating, picking, curing and sorting, all of which leave much to be desired. The Monopoly's rather haphazard and often arbitrary system of grading and its limitation on the amount of tobacco it will buy per licensed donum have discouraged the production of better quality tobacco and the achievement of higher yields. Storage of tobacco in inadequate warehouses contributes further to its deterioration.

The second objective appears to have been at least partly realized, at least insofar as farmers have been given remunerative prices for their tobacco and have received a fairly stable income in the last five years. During the war years farmers enjoyed a bonanza since the Monopoly had no effective limitations on output, classified most of the tobacco in top grades and bought it at very high prices. After the war, changes in grading, stricter limitations on output and lower prices inevitably created discontent, although prices were still remunerative and, until recently, the Monopoly continued to buy more tobacco than the licensed output. The wide disparity between the Monopoly's buying and selling prices has continued, however, to put a premium on the illicit growing and marketing of tobacco. Moreover, the merchant has managed to interpose himself to an increasing extent between the grower and the Monopoly because of his ability to advance money on crops, to transport tobacco to distant collection centers and to obtain a

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higher classification for the tobacco than the grower is often able to get.

The third objective has undoubtedly been achieved. During the period September 1, 1943 to March 31, 1950 the Monopoly's cash income exceeded its cash expenditures by almost 6.5 million dinars. In fact, contrary to original intentions, revenue would seem to have become the primary objective of the Monopoly.

Improvement in the quality of tobacco should be the primary aim in the future. The Mission therefore suggests that one or two foreign experts, together with a number of Iraqis, be engaged to work in the field in order to help farmers to better their methods of growing, picking, curing and sorting tobacco. At least one expert should be recruited to instruct graders in proper methods of classifying tobacco, and another expert with an Iraqi deputy should be appointed to approve all tobacco for final purchase by the Monopoly. The existing inadequate warehouses should be replaced by four or five new warehouses provided with dust extracting facilities and proper humidifying equipment.

The Mission believes that under existing circumstances the Monopoly should be retained. As long as the tobacco is not of such quality that it can be marketed abroad, there will need to be some agency to limit production. Moreover, in the absence of the Monopoly the large number of small growers would have inadequate bargaining power in the fixing of prices vis-a-vis the merchants and manufacturers. The Mission advises strongly, however, against the proposed extension of the Monopoly to the manufacture of tobacco products. Such a step seems hardly necessary, since manufacturing is generally in competent hands, and it would only divert the Monopoly's attention from the primary task of improving the quality of the tobacco. The Mission suggests that the Monopoly be reorganized as a fiscally autonomous agency within the Ministry of Agriculture recommended elsewhere in the report. The Monopoly should be headed by an Iraqi director-general assisted by an expert adviser and an advisory board which would include representatives of the growers. In order to discourage illicit marketing of tobacco, the difference between the Monopoly's buying and selling prices should be narrowed to an amount sufficient to cover operating costs and depreciation as well as the accumulation

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655 of a small cash reserve. The resulting loss in revenue can be offset 249 by an increase in the tobacco excises which are relatively easy to collect from the manufacturers. The reduction in illicit production and marketing thus achieved should make it possible to raise the existing limitation on output per donum. This would encourage the better farmers, yet probably would not necessitate a further restriction of the licensed area, which the Mission realizes would be politically impracticable.

The Introduction of Sugar

249 In view of the government's desire to introduce the cultivation of sugar beets in northern Iraq, this subject has also been given special attention by the Mission. The possibility merits serious [439] consideration because Iraq has imported over the last three years, on the average, 75,000 tons of sugar annually. There is, in addition, a serious need for new crops to diversify production and make more effective use of the manpower on the land. The Mission believes, however, that no decision on the production of sugar should be made until there is reasonable assurance that sugar can be produced at a cost competitive with the landed price of imported sugar (thus exclusive of import duty) and that the farmer will derive an income from sugar at least equal to that obtained from alternative crops, such as cotton, which can be grown on the same land. Moreover, before a decision is made in favor of sugar beets, the superiority of this crop over sugar cane, which could be grown in the South, must have been clearly established.

Sugar beets have been successfully grown in northern Iraq in test plantings carried out by the Department of Agriculture. Larger and more extensive test plantings are necessary, however, particularly to study the problems of insect control, yields and costs. The problems of labor supply and transport also need to be more thoroughly explored. The cultivation, transport and processing of sugar beets require close coordination and therefore careful organization. The production of beets is exacting, requiring considerable skill and labor. While preliminary evidence indicates that, on the basis of current price relationships, the yield per donum of sugar beets and cotton would not be significantly different, the balance of advantage may well prove to be on the side of cotton since, owing

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to the greater amount of labor required for sugar beets, a single family can probably cultivate a larger area in cotton. Up to the present, tests have not found a variety of sugar cane adapted to Iraq, but both the methods and the scale of the experiments have not been adequate enough to prove conclusive. If further experimentation does result in the discovery of a well- adapted variety, the production of cane may be preferable since cane yields are generally higher than beet sugar yields and cane production requires less skill. Moreover, the farmers in Amara in southern Iraq, where cane would be grown, are at least as much in need of a new crop as those in the North.

The Mission therefore believes that further investigation and experimentation over the next few years are required before a sound decision can be reached on the production of sugar. For this purpose it suggests that two experts be engaged to direct further research, one in beet and the other in sugar cane. During the period of experimentation it may also be desirable to invite a leading foreign sugar company, acquainted with the production and processing of both beet and cane, to make a study and recommendations on the best way of organizing the cultivation and processing of sugar.

Production Credit and Marketing

A considerable increase in farm income could ultimately be achieved through the provision of more ample agricultural credit, the establishment of storage facilities for crops and the organization of cooperatives.

The resources of the state-owned Agricultural Bank, the only agricultural credit institution, are insufficient to meet existing needs for credit. In many cases farmers must either borrow money from private lenders at exorbitant rates of interest or sell their crops in advance of the harvest at substantial discounts. Although the Bank has an authorized capital of ID 1,000,000, the government has paid in only ID 550,000 and the Bank has been compelled to borrow ID 300,000 to supplement its slender resources. In November 1949 the Bank was forced to suspend lending except for small amounts and not until a year later was it able to resume credit operations on a modest scale. It is vital that farmers be

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reason the cultivation of more cotton as well as such crops as linseed and sunflower seed will be important to the livestock economy.

Sugar Beets and Cane

The value of beet tops and pulp for livestock feeding might also be regarded as one of the principal reasons for introducing the cultivation of sugar beets. Similarly, one of the advantages of cane sugar might be the production of molasses which could also be used for livestock feed. These have been, of course, subordinate considerations in the minds of those who have advocated these crops for Iraq. The principal consideration has been to produce at home the sugar now imported in a volume which averaged 75,000 tons per year in the three-year period 1948 to 1950.

Undoubtedly sugar beets could be cultivated in the northern provinces of Suleimaniya and Mosul and sugar cane in the South, particularly in Amara. The real question is, however, whether either or both of these crops could be grown economically and on a scale large enough to warrant the necessary investment in processing plant. It must be decided whether cane or beet is preferable and whether either of them can compete with cotton for the available land, water and labor. The data available at present do not make it possible to arrive at sound decisions on these questions.

Test plots grown over 10 years indicate that there are several varieties of beet well adapted to Iraq and capable of reasonably high yields in terms of sugar. Experiments on cane sugar production at Abu Ghuraib, Basra and Amara have yielded much less favorable results, although one variety under test held some promise of furnishing sugar at an economic cost. The experiments, however, have not been conducted in a way and on a scale that would permit a satisfactory conclusion. If further experiments prove the feasibility of growing cane, it is likely to be a more economic crop than sugar beet. Experience elsewhere demonstrates that cane yields are generally higher and that the production of cane is less difficult and less demanding of skilled and semi-skilled labor than that of sugar beets. It is suggested therefore that further experiments on a larger scale be undertaken under appropriate expert guidance. In each of the possible beet sugar areas five or more 10-donum plantings might be tried. Special attention

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249 should be paid to the effect of fertilizers on yields and to the possibility of insect and disease damage. A careful record should be kept of production costs. Similar large scale experiments with sugar cane would have to be initiated at Amara on a comparable basis. A sugar beet expert should be engaged to direct research at Abu Ghuraib, with assistants at the Bakrajo and Nineveh substations. Another expert would be needed to take charge of the experimental work on cane. Both men would have to be given a sufficient field force to carry out the manual labor involved.

These field experiments should be supplemented by an economic inquiry into requirements for labor, farm equipment and transport and into comparative costs of production. In this connection the cost of producing cotton on the same land would have to be investigated. The value of the yield per donum, taking into account the by-products, would need to be compared on the basis of existing price relationships as well as the factors which may affect that relationship in the future. For example, it might be concluded that in the longer run the demand for cotton, and therefore its price, would be better maintained, especially in the sterling area. In any comparison of yields it would be necessary not only to consider the output per unit of area but also the area which an average family could be expected to cultivate in the particular crop. Thus it is probable that one family could grow a larger area in cotton than in sugar beets because the latter demand more labor, particularly heavy labor that could be performed only by adults. Finally, there must be a reasonable assurance that sugar can be produced and sold at a price which will prove competitive with that of imported sugar less the import duty.

III. Observations on Existing Crops

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No attempt is made in this monograph to comment on every crop grown in Iraq. Many crops could be improved through the introduction of varieties which are more productive and resistant to insects and disease. Only an adequate research and extension service, to which reference will be made later, will be able to capitalize on the many potentialities for improvement. Here, only a few of the more important crops are singled out for special mention.

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varieties of pistachio scions on established native pistachio trees should be given particular attention. Almond orchards could be increased to advantage.

Vegetables and Potatoes

Vegetable culture is concentrated in the neighborhood of the large cities where such products as radishes, lettuce, cabbage, cucumbers, squash, tomatoes and others are in good supply during the season. Unfortunately vegetables do not figure prominently in the diet of most people. Outside of the big towns little or no vegetables are eaten. In part, this appears to be due to the fact that tribal tradition holds the cultivation of vegetables in low esteem. However, where the sharecropper is inclined to grow vegetables, he may be discouraged by the lack of available land or the shifting of the area assigned to him for cultivation. If a determined effort were made by the government to enlist the cooperation of the landowners, it might not be too difficult to overcome these obstacles.

It might be desirable to increase the production of potatoes which are now imported to the value of about ID 100,000 per year. The lighter soils along the large streams in the provinces of Mosul, Erbil and Suleimaniya are particularly well adapted to the production of both Irish and sweet potatoes. With proper guidance in cultural practices and the use of fertilizers, planters in these areas could easily supply the country's needs. If it is demonstrated that potato yields compare favorably with other crops, the government might well encourage the planting of potatoes both by launching an educational campaign and by furnishing the necessary seed to planters. Special attention will need to be given to transport, however, and the growers will have to be shown how to build inexpensive potato bins or pits with sufficient ventilation, insulation and accessibility.

Tobacco

Tobacco has been grown to some extent in the North for centuries, although it was not until the last few decades that its production assumed importance. Even now, the value of the tobacco crop is probably no more than a tenth of that of wheat or barley. In the mountainous areas of Erbil and Suleimaniya, however, it is

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the principal crop of the Kurdish farmers. Moreover, the way in which tobacco has been bought, sold and handled by the government Monopoly has created much controversy. At the same time the Monopoly's operations have yielded considerable profits to the Treasury. Finally, the government is hopeful of expanding the production of tobacco, which is at present grown only for home consumption, so that it will make a significant contribution to exports. For all these reasons tobacco has become an important and controversial subject.

The purchase and sale of raw tobacco and tombak was vested in the government by law No. 35 of 1939. This legislation also instituted government licensing of the manufacturing, importation, wholesaling and retailing of cigarettes and controls over the importation of cigarette paper, boxes and other requisites for the manufacture of cigarettes. Operation of the Monopoly was at first entrusted to the Customs Department but in 1943 it was transferred to a separate Directorate-General within the Ministry of Economics. The original law did not detail the objectives of the Monopoly beyond specifying that "one of its main objectives shall be the improvement of tobacco." Apparently, however, other objectives were (1) to assure the cultivators fixed and remunerative prices for their tobacco, and (2) to raise revenue for the government.

Quality of Tobacco

The principal objective of the Monopoly has certainly not been achieved. In fact, it is generally recognized that the quality of tobacco has deteriorated rather than improved during its existence. The reasons for this are many. First of all, neither the Monopoly nor the Department of Agriculture has given farmers any assistance in improving their crop even though the cultivation, picking and curing of tobacco require considerable knowledge and skill which has been largely lacking in Iraq. The tobacco now grown is a mixture of several varieties not at all uniform in type, time of maturity or quality. Instead of picking the leaves individually starting at the bottom of the stem, the whole plant is frequently harvested at once. Curing is haphazard, with immediate exposure of the leaves to the sun instead of retaining them in a wilting shed

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for three or four days. In packing and grading, growers do not separate the bottom, middle and top leaves or take care that packing takes place only when the moisture content and the pliability of the leaves are just right.

The second reason for the poor quality is inadequate grading and manipulation by the Monopoly. Tobacco is graded for the Monopoly by committees whose members are generally untrained. Classification is by color only and a bale given a single grade often has tobacco ranging through all shades of green, yellow and brown. Influential cultivators, or merchants acting on their behalf, can often obtain grades for their tobacco unwarranted by its merits. Thus the grading system offers little or no incentive to the grower to produce the best possible tobacco. Finally, the Monopoly stores tobacco under conditions which contribute to its rapid deterioration. Warehouses are often exposed to the elements and are without temperature and humidity control so that tobacco may alternately ferment and dry out. Little re-grading or manipulation is done in warehouses.

Farmer Income from Tobacco

Whether the Kurdish farmers have on the whole obtained an adequate income from tobacco is less easy to determine. Their income from tobacco has depended on (1) the amount of tobacco purchased from each year's crop by the Monopoly and the prices (less *istihlak* and land tax) paid, and (2) the amount of tobacco sold illicitly and the prices realized thereon. Unfortunately, not enough data are available to permit an estimate of the income of tobacco farmers. Data on prices paid by the Monopoly for the first three years of its operation are lacking; figures on total tobacco production, from which the amount marketed illicitly might be deduced, do not exist; and little or nothing is known about the prices realized on tobacco marketed illegally.

During the war the Monopoly, which was supposed to equate the supply of tobacco with demand by licensing the area under cultivation, apparently made no real effort to use licensing as an instrument for the restriction of production. The area licensed rose steadily from 28,014 donums in 1940 to a peak of 71,730 in 1944. In the period 1943-45 the income of farmers was also considerably

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increased by classifying a much larger proportion of their output as "extra" or "first" grades which, of course, fetched higher prices. At the same time the Monopoly boosted the prices paid for the 1944 crop to a level more than twice as high as those which had prevailed for the 1943 crop. For the 1945 crop it lowered its prices somewhat but still maintained them at a level approximately twice as high as in 1943. As a result the Kurdish farmers reaped a bonanza. Whereas the Monopoly paid only ID 634,005 for the 1943 crop, it disbursed ID 3,208,032 for the 1944 crop and ID 3,608,997 for the 1945 crop (see table).

TABLE 1

LICENSING AND PURCHASING OPERATIONS OF THE TOBACCO MONOPOLY

Year	Donums Licensed	Prices Paid for Each Grade (1943 = 100)				Total Purchases	
		Extra	First	Second	Third	Quantity (kg)	Value (dinars)
1943	57,747	100	100	100	100	4,080,787	634,005
1944	71,730	247	233	229	250	8,863,022	3,208,032
1945	34,797	210	198	194	211	12,582,734	3,608,997
1946	26,818	140	151	183	214	4,395,166	746,499
1947	19,225	154	167	202	236	4,231,320	757,152
1948	15,500	140	151	183	214	4,347,639	772,729
1949	15,500	140	151	183	214	6,621,905	1,326,291
1950	16,000	140	151	183	214	n.a.	n.a.

Beginning in 1946 the Monopoly began to retrench sharply. The area licensed was reduced successively to 19,225 donums in 1947 and 15,500 in 1948, and it has since been held to approximately this level. Prices were also lowered to some extent. Most important of all, a stricter grading policy was adopted, resulting since 1946 in the virtual elimination of purchases of the "extra" grade and substantial reduction in the proportion of "first" grade tobacco purchased. As a result the Monopoly's disbursements for purchases from the 1946 crop fell to only ID 746,499. They have since been maintained at approximately this annual level except for the amount paid for the 1949 crop which amounted to ID 1,326,291. The quantity purchased of each year's crop fell from a peak of 12,600,000 kilograms in 1945 to about 4,400,000 in 1946,

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4,200,000 in 1947, 4,300,000 in 1948, and rose again to 6,600,000 in 1949. Actually, the Monopoly by no means fully enforced its announced policy of buying no more than the maximum amount that the licensed area could ostensibly produce.[4] Its purchases exceeded the ostensible maximum by about 400,000 kilos for the 1947 crop, 1,200,000 for the 1948 crop and as much as 3,500,000 for the 1949 crop. Much of the 1946, 1947 and 1948 crops evidently found their way into the black market.

Because of the danger of growing stocks, the Director-General, supported by the Prime Minister, issued a warning in advance of the 1950 crop that in the future no more tobacco would be bought than could be produced on the licensed area. Evidently the Monopoly carried out this policy for, up to April 12, 1951, it had bought only 2,250,000 kilos from the 1950 crop out of a theoretical total of 3,200,000 kilos. Since the cultivators apparently did not take the government's declared intention seriously, the actual crop substantially exceeded the permissible total. However, farmers were apparently compelled to sell their surplus illicitly at very low prices, thus giving rise to an expectation that in the next years the limitation on production will be more generally observed. If so, it seems likely that farmers' receipts from tobacco will amount to between ID 600,000 and ID 700,000 per year at prevailing Monopoly prices.

In general, it can probably be said that farmers received more for their tobacco than they would have obtained in the absence of the Monopoly. Since the tobacco produced is generally poor and therefore is unable to find foreign outlets, it is likely that, in the absence of the Monopoly's price support and production control program, prices would have been substantially lower. At the same time, the farmers suffered from the rather erratic policies of the Monopoly which permitted them to realize very high incomes during some of the war years and let them down suddenly immediately after the war.

Tobacco Monopoly Revenues

The government has undoubtedly enjoyed considerable income from the Monopoly. In any discussion of this subject a distinction

[4] The Monopoly has operated on the assumption that each licensed donum would produce up to a maximum of 200 kg. of tobacco.

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accrued despite rather inefficient operation because the Monopoly has consistently charged tobacco manufacturers prices two to two and a half times higher than those it paid for tobacco and it has been able to compel them to accept tobacco at the grade which it has specified, despite the marked deterioration of such tobacco in the Monopoly's warehouses.

Recommendations

In the future the first concern should be improvement in the quality of tobacco. To accomplish this it would be desirable first of all to recruit abroad at least two or three experts on the growing of tobacco. These, assisted by a selected number of Iraqis, would work directly with the growers in a campaign to raise the standards of cultivation, picking and curing. In addition, a minimum of two leaf experts should be engaged to give instruction in the proper methods of grading or classifying tobacco. In order to provide a check on the work of the grading committees, the appointment of an expert buyer to approve all tobacco for final purchase by the Monopoly is recommended. He would presumably need to be a foreigner initially, but would have an Iraqi deputy who would be trained to take his place. In the warehouses, several experienced foremen-manipulators are needed to supervise and teach the staff correct methods of handling and storing the tobacco. The inadequate existing warehouses should be replaced with four to five new ones constructed of brick and concrete, equipped with dust extracting and humidifying plant and portable storage racks. Each of these new warehouses would have four floors, the first three devoted to storage and the fourth to manipulation.

The Monopoly itself might be retained, principally because there will need to be some agency to limit production as long as the tobacco is not of such quality that it can readily be sold abroad. Moreover, the large number of small tobacco growers might otherwise be at the mercy of the merchants and manufacturers who would have incomparably more bargaining power in the fixing of prices. It is suggested, however, that the Monopoly be reorganized into a financially autonomous agency with its own budget, its own accounts and its own funds. As an autonomous government enterprise it would be required to turn over annually to the Treasury

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its profits, less a suitable reserve, determined in accordance with approved accounting practice. An expert accountant should be engaged to draw up a proper system of accounting for the agency. In this connection it would be desirable to revalue the stocks of the Monopoly realistically after destroying inferior and excessively deteriorated tobaccos. The Monopoly would be headed, as at present, by a Director-General who might usefully be assisted by an adviser of recognized competence in the production and handling of tobacco. It would be desirable also to have an advisory board on which both manufacturers and growers could be represented.

The existing wide disparity between the buying and selling prices of the Monopoly provides a powerful incentive to illicit production and marketing of tobacco. The Mission strongly urges that this differential be greatly narrowed to a point where it is sufficient only to cover the expenditures of the Monopoly, plus a reasonable reserve. The revenue lost in this way could be collected in the form of additional excises on the manufacturers whose output and sales can be controlled relatively easily.

The present limitation on the amount of tobacco which the Monopoly will purchase from each licensed donum discourages productivity and should accordingly be lifted. This would not necessarily mean a further contraction of the licensed area, for the curtailment of black marketing resulting from the reduction of the difference between the Monopoly's buying and selling prices should enable the Monopoly to buy and sell more tobacco.

The Mission believes it would be very unwise to adopt current proposals to extend the Monopoly's operations to the manufacture of tobacco products. The remedy for the poor quality of tobacco does not lie in government assumption of manufacturing operations. The present manufacturers turn out a reasonably good product considering the quality of their materials. Their production costs are also likely to compare favorably with those that could be achieved with government operation.

35: Hooper and Field 5-5 (1934) 1937 MAI Iran MAI
Iraq MHI

Field 3 (Inf.), 423; W.H.M.M. 150745. I-I

The above plant, growing in the alpine Himalayas, yields the Nardus root or spikenard of the ancients. The rhizome is short, thick, and dark gray, crowned by a bundle of strong fibers called by the natives "Devil's hair." The odor resembles valerian, and yields about 1 per cent of volatile oil containing valerianic acid. The physiological action is similar to that of valerian root, and the drug is administered for nervous disorders.—Prepared like tea it is given for heart diseases (H.F.). 278* 824*

Nepeta micrantha Bunge and **N. ispahanica** Boiss. (Labiatae)

زوفا

Zūfā, Zūnā (Teh.); Zufah-i-yabis (Ar.); the flowering herb.

Boiss. 4: 166; Achundow; Ph. Ind. 3: 116.

Field 23; W.H.M.M. 150733; K.B. 327.

Zufah is a fragrant plant used since primitive times as a carminative in the East. It has often been referred to as hyssop, but recent examinations have shown it to be *Nepeta*. Dymock found the Zufah of Sind to be *N. ciliaris* Benth., while the plant of that name in Baluchistan is *N. bracteata* Benth. Two specimens from Tehran consist of the fruiting calyx, flowers, and seeds. The calyx is erect, green, with purplish, acute teeth. The seeds are oblong, brown, 1 mm. in length, with a white, V-shaped scar at the end. They are mucilaginous when placed in water and are given for influenza and catarrh.—As an aromatic mint a cold infusion is prescribed for pain in the chest (H.F.).

Nicotiana Tabacum L. and **N. rustica** L. (Solanaceae) 824* 276

توتون

Tūtūn (Iraq); Tambaku, Tumaku; N. rustica=Turkomani tambaku (Afg.); tobacco leaves.

Field 89 (Iraq); 18, 23.

Tobacco is cultivated in northeastern Iran for local consumption as well as for local trade. It is an expensive crop there, as the fields must be heavily manured and require careful irrigation. The leaf is frequently treated with gur or crude sugar to moisten and add weight to the leaf. Beside being smoked, it is extensively used as an errhine or snuff (Nashwar). This is sometimes mixed with powdered ashes of *Ephedra pachyclada* Boiss., Huma (Gnetaceae) to render it more pungent. Two samples of snuff are noticed in the collection: [249]